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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/782,814	02/23/2004	Tatsuo Fukui	118801	5464
25944	7590	02/10/2006	EXAMINER	
OLIFF & BERRIDGE, PLC P.O. BOX 19928 ALEXANDRIA, VA 22320			AKANBI, ISIAKA O	
			ART UNIT	PAPER NUMBER
			2877	

DATE MAILED: 02/10/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/782,814

Applicant(s)

FUKUI ET AL.

Examiner

Isiaka O. Akanbi

Art Unit

2877

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 February 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☒ Claim(s) 13 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>13 July 2004</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION
Information Disclosure Statement

The information disclosure statement file 13 July 2004 has been entered and reference considered by the examiner.

Drawings

The examiner approves the drawings filed 23 February 2004.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 3 and 6 are rejected under 35 U.S.C. 102(b) as being anticipated by Sugaya et al. (5,680,200).

As regard to claims 1, 3 and 6 Sugaya discloses a mark position detection apparatus comprising of the following (col. 2, line 31-52):

an illumination optical system for illuminating a measurement mark (WM) with illumination light (103), an imaging optical system (19) for converging light reflected from said measurement mark to form an image of said measurement mark on an image pickup apparatus and which measures a positional displacement of said measurement mark by processing an image signal obtained by said image pickup apparatus, wherein an optical element (114/102) for compensating a difference in asymmetry of said image signal that depends on the wavelength of said illumination light (103), is provided in said illumination optical system (fig. 19)(col. 27, line 34-col. 29, line 41).

As to claim 2, according to claim 1, Sugaya discloses wherein said optical element (114/102) is provided in a parallel light flux portion of said illumination optical system (fig. 19).

As regard to claims 4 and 5, Sugaya discloses wherein said optical element comprising a plane parallel plate (col. 28, line 19-30).

As to claim 6, Sugaya discloses a mark position detection apparatus comprising of the following (col. 2, line 31-52): an illumination optical system for illuminating a measurement mark (WM) with illumination light (103) and an imaging optical system (19) for converging light reflected from said measurement mark to form an image of said measurement mark on an image pickup apparatus and which measures a positional displacement of said measurement mark by processing an image signal obtained by said image pickup apparatus, wherein a first optical element (102/114) is provided in said illumination optical system and a second optical element (121) is provided in a parallel light flux portion of said imaging optical system, thereby compensating a difference in asymmetry of said image signal that depends on the wavelength of said illumination light (fig. 19)(col. 27, line 34-col. 29, line 41).

As regard to claims 7, 8 and 9, Sugaya discloses wherein each of said first optical element and said second optical element comprising a plane parallel plate (col. 28, line 19-39).

Regarding claim 10, Sugaya discloses a method for adjusting a microscope apparatus having an illumination optical system for illuminating a measurement mark (WM) with illumination light (103) and an imaging optical system (19) for converging light reflected from said measurement mark to form an image of said measurement mark on an image pickup apparatus, said microscope apparatus detecting a positional displacement of said measurement mark by processing an image signal obtained by said image pickup apparatus (fig. 19) comprising of the following: providing an optical element (114) for shifting an light axis of said illumination light at a position in the vicinity of a position of an illumination aperture stop or a position conjugate with the position of the illumination aperture stop (117), and adjusting said optical element in such a way that illumination wavelength dependency of said image signal becomes minimum.

As regard to claim 11, Sugaya discloses wherein said measurement mark comprising linear indents having a regular width that are arranged periodically with regular intervals (fig. 7)(fig. 54).

As regard to claim 13, Sugaya discloses wherein said measurement mark comprising an indented portion having a depth equal to two to six times the focal length of said microscope apparatus.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sugaya et al. (5,680,200) in view of Bae (5,766,809)

Claims 12 rejected under 35 U.S.C. 103(a) as being unpatentable over of Sugaya in view of Bae, as applied to claim 10. The reference of Sugaya teaches of the features of claim 12, comprising measurement mark (WM), however the reference of Sugaya is silent regarding the said measurement mark comprising at least two small rectangular indents having the common center, and the depths of said two rectangular indents are different from each other. The reference of Bae teaches of two small rectangular indents having the common center, and the depths of said two rectangular indents are different from each other (fig. 8). It would have been obvious to one having ordinary skill in the art at the time of invention to use two small rectangular indents having the common center, and the depths of said two rectangular indents are different from each other for the purpose of testing an overlay occurring in a semiconductor device to compensate for an error generated in the measurement of overlay.

Allowable Subject Matter

Claim 13 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

As to claim 13, the prior art of record, taken alone or in combination, fails to disclose or render obvious wherein said measurement mark comprises an indented portion having a depth equal to two to six times the focal length of said microscope apparatus.

Additional Prior Art

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The references listed in the attached form PTO-892 teaches of other prior art mark position detection apparatus that may anticipate or obviate the claims of the applicant's invention.

Conclusion

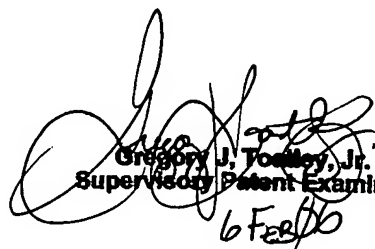
Fax/Telephone Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Isiaka Akanbi whose telephone number is (571) 272-8658. The examiner can normally be reached on 8:00 a.m. - 4:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory J. Toatley Jr. can be reached on (571) 272-2800 ext. 77. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Isiaka Akanbi
January 31, 2006


Gregory J. Toatley, Jr.
Supervisory Patent Examiner
6 Feb 06